Green Human Resource Management/Supply Chain Management /Regulation and Legislation and its effects on Sustainable Development Goals in Jordan

Lana Jamil Freihat *, Mousa Sami Al-Qaaida *, Maysam Abbod, Zayed Ali Huneiti *

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Article

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Lana Freihat [1,*], Mousa Al-Qaaida [2], Zayed Huneiti [3] and Maysam Abbod [4]

[1] Department of Electronic and Electrical Engineering, College of Engineering, Design and Physical Sciences, Brunel University London, Uxbridge UB8 3PH, UK
[2] Department of Law, Faculty of Law, Amman Arab University, Jordan Street–Mubis, Amman 11953 – Jordan, m.alqaaida@aau.edu.jo
[3] Electrical Engineering Department, Faculty of Engineering Technology, Al-Balqa Applied University, Amman 11134, Jordan, zayedhuneiti@bau.edu.jo
[4] Department of Electronic and Electrical Engineering, College of Engineering, Design and Physical Sciences, Brunel University London, Uxbridge UB8 3PH, UK, Maysam.Abbod@brunel.ac.uk
* Correspondence: LanaJamilSh.Freihat@brunel.ac.uk

Abstract: sustainability and environmental concerns have been important topics of discussion in recent decades. Green Human Resource Management (GHRM), Green Supply Chain Management (GSCM) practices are aimed at developing environmental performance and sustainability in organizations. The implementation of GHRM and SCM practices can enhance corporate management practices and competitiveness, and it is influenced by environmental requirements regulation and legislation. The objective of this article is to propose a conceptual framework of the research model included the correlations between Government regulations and legislations, GHRM, GSCM and Sustainable Development Goals (SDG). After an extensive review of the literature, a set of dimensions and practices used for achieving SDGs has been identified. From the analysis of the findings, a conceptual framework that is organized into 3 environmental dimensions and 6 green practices that effects decent work and economic growth (SDG8), Responsible consumption and production (SDG12) and Climate action (SDG13) is proposed. The framework can contribute to the literature, given that empirical studies mostly select a limited set of dimensions to evaluate GHRM, GSCM, SR and SL and SDGs. Finally, it is envisaged that this study will offer directions for future research work.

Keywords: green human resource management1; green supply chain management2; regulation and legislation3; sustainable development goals4

1. Introduction

Sustainability has become increasingly important to communities globally, as concern rises over the survival and effectiveness of resources, infrastructure, policies, and economies in the midst of climate change, overconsumption, and an overextended global population. Since its popularization from its policy-based origins in the Brundtland report, the term "sustainability" has been cast into a wide scope of meaning, transforming from its prominently eco-environmental focus of development in relation to the environment, to an extended context encompassing three pillars: the social, economic, and environmental [1–3].

Jordan, like the rest of the world, has anchored its national development strategies plans, and policies in the 2030 Agenda, goals, and targets. Jordan current development plan, the Government's Indicative Executive Program (GIEP), is the most ambitious yet in terms of the extent to which it integrates the Sustainable Developments Goals (SDG). Jordan has also mainstreamed the SDGs into other sectoral strategies and action plans, complementing efforts exhibited in the GIEP. These include Jordan's Green Growth National Action Plan 2021-2025 [2,4,5]. Four driving principles of green growth are identified and mainstreamed across the actions in the Green Growth National Action Plan 2021-2025 are transparent governance processes and government regulations and legislations,

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behaviour shift and capacity building (creating new green jobs), mechanisms to incentivize green growth and integrated planning processes that value societal impacts [6].

Green Human Resource Management (GHRM) and Green Supply Chain

Management (GSCM) are two popular subjects that are linked to the SDGs [7–10]. There is a significant gap in the integration of GHRM and GSCM, but research has shown that both can have a positive impact on the triple bottom line (TBL) of sustainability performance [8]. GSCM practices can improve business performance and environmental sustainability [9]. Overall, the integration of GHRM and GSCM can contribute to achieving the SDGs, which include legal frameworks for environmental protection and labour rights. The international laws and regulations can provide a legal framework for countries to adopt policies and regulations that align with the SDGs, promote partnerships, and provide tools to achieve SDGs. Therefore, it can be inferred that law plays a crucial role in the implementation of GHRM and GSCM practices.

In the world countries included Jordan, there is limited research on the relationship between Legislation pressure & support of government, GHRM and GSCM [7,11–13]. In Jordan, the industrial sector remains a key pillar of the Jordanian economy, contributing

22.4% of Gross domestic product (GDP) and providing 14.2% of total employment with 227,000 jobs in mostly low to medium skilled positions in 2021. Therefore, it is important to monitor the response of the industrial sector to government policies promoting sustainability.

2. Research Methodology

A qualitative content analysis was used for integrating government regulations and legislations, green human resource and green operation and supply field and to identify the predictors of SDG attainment. The first step consists of a database search and the second step a reference search, using the same keywords for both. Like previous studies on GHRM, the following keywords were used in the search engine: "sustainable HRM", "green HR",

"GHRM", "GHRM practises", "sustainability and HR", "SDGs and GHRM", "SDGs and GHRM practises", "GHRM and GSCM" and "Pillars of sustainability and GHRM". For green supply and operation, the following keywords in the search engine were used:

"sustainable SCM", "green SCM", "GSCM", "GSCM practise", "sustainability and SC", "SDGs and GSCM", "SDGs and GSCM practise", "GSCM and GHRM" and "Pillars of sustainability and GSCM". In addition, the following keywords in the search engine were also used: "Regulation and SDGs", "regulations and legislations and SDGs", "Regulation and GHRM", "Regulation and GSCM", "regulations and legislations and GHRM", "Government regulations and legislations and GSCM", "Government green Incentives".To cover laws and judicial decisions, the Qistas and Qarark search engine were also used, this search engine provides researchers a reliable and up-to-date access to original Jordan content through an unmatched database of laws and judicial decisions.

These keywords were chosen in view of the aim of the study, and they also allow to group the selected papers into three categories: government regulations and legislations, GHRM, and GSCM. It also enables to study the research problem from documentary evidence point of view and for collecting data led to the identification of set of factors affecting government regulations and legislations, GHRM, and GSCM. Data were collected from Arab and foreign sources relevant to the subject of the study to collect information that's include scientific references, literature such as studies, research, scientific periodicals, and theses related to the subject of research, as well as access to formal Jordan reports, internet sites and electronic libraries. For instant, the information and data relating to practical side, the researchers used several sources to collect information and data from. In the study, an initial sample of 167 articles was provided. Subsequently, after reading the abstracts, discussions, and conclusions, a literature review of 20 articles was conducted as shown in Table 2. In addition, 54 articles were reviewed in order to explain the conceptualization of the paper variables. The remaining articles were excluded the as they didn't directly relate to the subject issues, for example, articles with a broader view of sustainability and use the latest references.

A conceptual framework of the research model included the correlations between

Government regulations and legislations, GHRM, GSCM and SDGs is shown in Figure 1.

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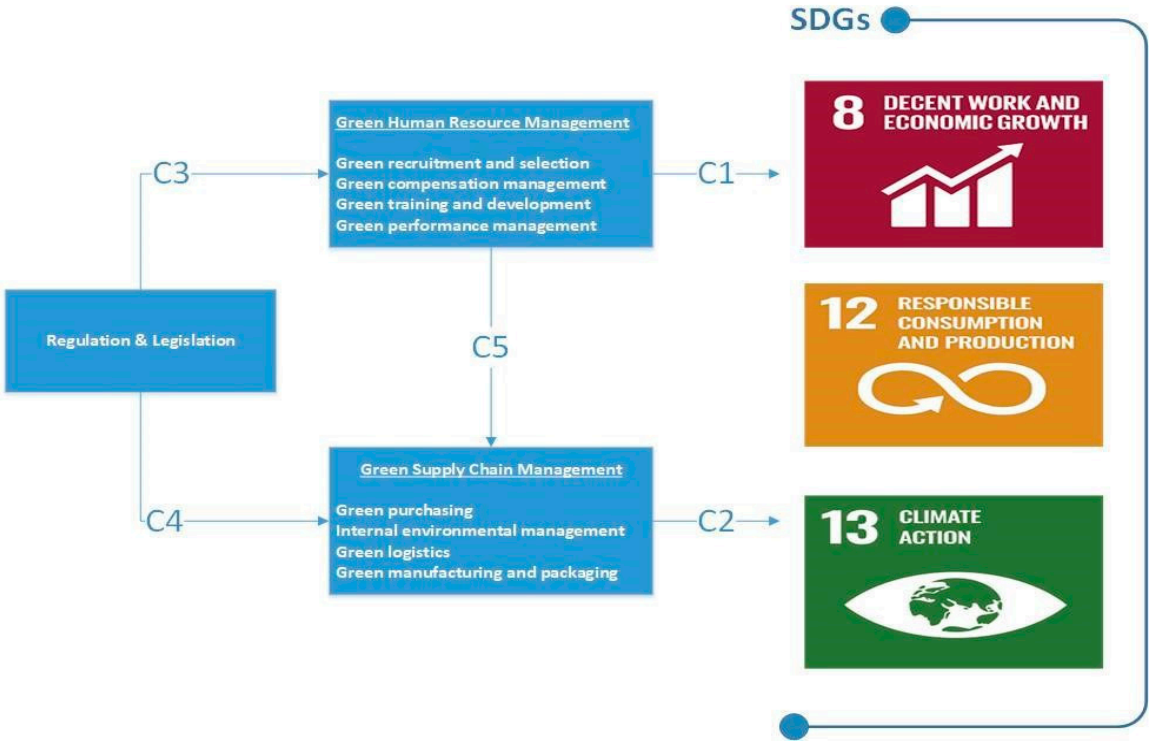

Figure 1. A conceptual framework of the research.

3. Literature review

The following section include brief conclusions of previous related literature that describes the relation between the role of government regulations and legislations, green human resource, green operation and supply and UN SDGs. A correlation is provided in Table 1 and summary of the literature review in Table 2.

Table 1. Correlations.

C. No.	Correlation	References
1	GHRM and SDGs	(Francisco Cesário, et al.,2022; Sachin B S and Aradhana N M,2019 ;Nour Chams and Josep García-Blandón, 2019 ;Edyta Bombiak and Anna Marciniuk-Kluska ,2018)
2	GSCM and SDGs	(Ashutosh Srivastava et al.,2022; Djekic et al.,2021; Saddam A. Hazaea, et al. 2022)
3	Regulations and legislations and GHRM	(Nour Chams and Josep García-Blandón,2019; İktisadi Ve , et al.,2020; Moraes et al.,2018; Ishak Dayang Almahera,2018; Moktadir, Md et al., 2019)
4	Regulations and legislations and GSCM	(Moktadir, Md et al., 2019;Hany Hanna,2021; Tasmia Jannat Tumpa et al., 2019; Moawiah Alnsour ,2019;Moawiah Alnsour,2020;Hadeel Abdellatif and Stephanie Graham,2019; Luay Jum'a , et al.,2021)
5	GHRM and GSCM	(Moawiah Alnsour ,2019; Moawiah Alnsour,2020;Kittisak Jermsittiparsert et al., 2019; Hadeel Abdellatif ,2021 ; Yu, W, Chavez et al, 2020 ; Moktadir, Md et al., 2019)

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Table 2. Literature review .

Author & year	Title	Methodology	Findings	Gaps & issues for future findings
Ashutosh Srivastava,Vidhisha Vyas and Amulya Gurtu (2022) [14]	SCM and the United Nations Sustainable Development Goals	study of the existing literature using bibliometric analysis published in the Scopus database between 1991 and 2020.	Clear link between the United Nations SDGs and SSCM and how they can benefit organizations.	the research can be expanded on a larger scale to examine the relationship between SDGs and societal happiness
Edyta Bombiak and Anna MarciniukKluska (2018) [15]	GHRM as a tool for the sustainable development of enterprises	A survey was conducted among a random, representative population of 150 young enterprises	Strong positive correlation between the evaluation of the impact of individual activities within GHRM on sustainable company development and their practical implementation.	Raise awareness and disseminate knowledge concerning the impact Green HRM can have on sustainable development in organizations
Francisco Cesário, et al., (2022) [16]	GHRM Practices and Person-Organization Fit: The Moderating Role of the Personal Environmental Commitment	A quantitative and hypothetical-deductive approach was used, and a sample of 204 Portuguese employees responded to an online questionnaire.	Triple Bottom Line approach and the SDG 13+8 five-factor measure to assess perceived GHRM practices green recruitment and onboarding, green training, green performance management and rewards, green internal communication, and green sustainable culture	influence of all GHRM practices on the personorganization fit is greater than for participants with low environmental commitment
Hadeel Abdellatif (2021) [17]	Green recruitment in facilitating the adoption of GSCM practices	A qualitative approach 12 in-depth semi-structured interviews across four case companies	green recruitment can be a facilitator for the adoption of GSCM practices	conducted in others country context
Hadeel Abdellatif and Stephanie Graham (2019) [18]	GSCM Practices in Developing Countries	Single case study named as Al-Quds paints, and data is collected through semi structured interviews with the general manager and the environmental manger	manufacturers in Jordan are showing interest and commitment towards protecting the environment despite the absence of governmental regulations by adopting a range of GSCM practices	use of multiple cases from different Jordanian manufacturers
Hany Hanna (2021) [19]	Model for GSC Adoption: An Empirical Analysis of	Quantitative 405 respondents qualitative data obtained through interviews Industrial Sectors in MENA Developing Countries	Significant relationship between the environmental, organizational and Technological dimensions and firm practices and SC practices	Government regulations and requirement is an important reason for compel industries to adopt GSC programs and health and environmental programs in the industry
Saddam A. Hazaea, et al. (2022) [20]	Green Purchasing: Past, Present and Future	study analyzed 142 studies from 61 journals published between 1998 and 20	The study identified the mechanisms of persuasion that motivate consumers to buy green products and	Future studies may take these determinants for future work such as

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			provided a clear picture of the contribution of green purchasing to achieving sustainability	government regulations and government initiative
İktisadi Ve , et al. (2020) [21]	Adoption level of green practices and its effect on employee' performance technological, organizational and environmental factors	Quantitative research 2,000 employees Turkey road transport of goods in Turkey	The technological factors and organizational factor (quality HR) s have statistically significant effect on task performance	applied for businesses in different sectors
Ilija Djekic et al., (2021) [22]	Role of the Food Supply Chain Stakeholders in Achieving UN SDGs	A literature review and delphi method	Four SDGs have been revealed as most important, as follows: SDG6 , SDG7 ,SDG12 , SDG13	further attempts are needed to pave the way for fulfilling the UN SDGs' targets and exceeding expectation of all meat supply chain stakeholders.
Ishak Dayang Almahera (2018) [23]	GHRM, environmental management practices and perceived organizational support influence organizational citizenship behavior for environment	Aquantitative research 117 construction employees in[Sungai Petani, Kedah in Malaysia	none of the factors influence organizational citizenship behavior for environment among the employees. It is probably because there are lack of implementation and execution of environmental friendly practices, and there is less awareness among the employees of the importance or environmental protection	the stakeholders (employees, management, organization, industry and government) to revisit the current policy and execute the rules and regulation more strictly to all industry and all levels employee.
Kittisak Jermsittiparsert et al., (2019) [24]	Determining the Environmental Performance of Indonesian SMEs influence by GSC Practices with Moderating Role of GHR Practices	The data was collected by questionnaire from SMEs of Indonesia	GSC practices influence the environmental performance, green purchasing and logistics influence the environmental performance of firms. The study found that moderating role of GHRM was not observed between green purchasing and environmental performance but GHR practices moderate the relationship between green logistics and environmental performance.	be more proactive for adoption of green SMC practices and make sure employees to behave green and adopted green HR practices
Luay Jum'a , et al. (2021) [25]	Factors affecting managers' intention to adopt GSCM practices	Quantitative research 376 manufacturing firms in Jordan	Supplier's commitment, environmental sustainability, customer satisfaction, and cost factors are the most significant drivers	this study has utilized a convenient sampling approach which limits the generalizing capability of the study findings
Moawiah Alnsour (2019) [26]	Factor affecting sustainability integration	Qualitative Contents analysis in public construction industry in Jordan	Factors are The current process of public procurement and contract development, The regulations and government	find best practices and programs associated with integrating sustainability in public construction

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			support, and The professionals' expertise and knowledge,	industry and barriers that hinder the achievement of sustainability
Moawiah Alnsour (2020) [27]	Barriers for Integrating Sustainability into Public Works	Qualitative	The current process of public procurement and contract development, Lack of regulations and government support and Lack of professionals, expertise and knowledge	recommends for future work to validate these findings through conducting quantitative method. In addition, other set of solution to overcome these barriers need to be more and further investigation.
Moktadir, Md et al., (2019) [28]	Antecedents for greening the workforce: Implications for GHRM	Literature review	The results revealed that 'green selection facility', 'green recruiting facility', 'green organizational culture', 'green purchasing, 'green strategy towards ES', 'regulatory forces towards ES' and 'top management commitment towards greening the workforce' are the key antecedents for the exercise of GHRM practices	In future research, study can be unfolded to more regions
Moraes et al., (2018) [29]	When knowledge management matters: interplay between green human resources and eco-efficiency	A quantitative research type with a sample of 178 employees financial banks in Brazil	Regulatory forces towards eco-efficiency and green pay and reward facility	eco-efficiency program of the studied bank could be more effective if connected with green team
Nour Chams and Josep GarcíaBlandón (2019) [30]	On the importance of sustainable human resource management for the adoption of sustainable development goals	Systematic literature review	Competitiveness, legitimacy, and ecological responsibility are the motives that underlie organizational change	Research gaps in the existing literature are identified and potential future directions are suggested for further research in the field of sustainable management
Sachin B S and Aradhana N M (2019) [31]	GHRM: Best practice of Attaining Sustainable Development Goals	Descriptive research in India	Green Human Resources really helpful for attaining sustainable development goals in micro level like in industries.	If every industry would introduce GHR it's definitely going to help macro level sustainable development.
Syed Mehmood Ali Shah et al., (2021) [32]	Linking green HR Practices and Environmental Economics Performance: The Role of Green Economic Organizational Culture and Green Psychological Climate	A quantitative study approach	ecological factors such as green psychological climate, green organizational culture, and sustainable environmental efficiency are positively affected by GHRM. In addition, green organizational culture and green psychological climate positively mediate the relationship between GHRMP and SEF	adopting GHRM strategies and increasing technical innovations to improve sustainability and economic performance

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Tasmia Jannat Tumpa et al., (2019) [33]	Barriers to GSCM: An emerging economy context	A questionnaire survey of Bangladeshi textile practitioners of operations and supply chain management division,	One of most important barrier is lack of government regulations	Relevant policy makers about the barriers prevailing in the emerging economies towards the adoption of GSCM practices

4. Analysis

4.1. Sustainable Development Goals (SDGs)

The UN developed SDGs to address three pillars in 2015 to build upon the agenda and progress of the Millennium Development Goals of 2000, SDGs that arose from the NY summit and were ratified in January of 2016 also established distinct responsibilities for the developed nations to prioritize sustainability and partnership in communication with developing (see Figure 2) [2,5].

Figure 2. Sustainable Development Goals, Source: The 17 GOALS | Sustainable Development (un.org).

The concept of the "three pillars" companies and triple bottom line (TBL) approach (Profit, Planet, and people) is fundamental to many, institutions, and government agencies today. SDGs aggregate according to the social, economic and environmental pillars through the direct impacts and policy goals of SDGs pillar [1]. For example, SDG8 and SDG9 are closely linked to sectors that produce jobs, decrease poverty, and improve people's lives. SDG7, SDG 12 and SDG 13 are closely linked to manufacturing sectors that related to SCM.

Table 3. shows the classification of SDGs [3,14].

Table 3. classification of SDGs.

Pillars	**SDGs**
Social	SDG1, SDG2, SDG3, SDG4, SDG5, SDG7, SDG11, SDG16
Economic	SDG8, SDG9, SDG10, SDG12

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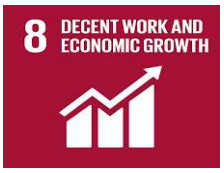
Environmental	SDG6, SDG13, SDG14, SDG15

As shown in the 2nd voluntary national review report of Jordan, the SDGs that achieved the greatest progress in terms of indicators were SDGs 9 and 12, with the least progress made in SDG8. A partnership with the private sector was established in 2015 and in implementing many projects SDG7 and to implement various projects including disposal and transport of dangerous and medical waste, in addition to training of cadres in the health sector SDG12 [5]. Table 4 shows the three SDGs and how achieve Green Growth.

Table 4. Goals of Green Growth National Action Plan linked to SDG8,12, 13.

Sustainable Economic Growth	
Resource Efficiency	
Climate Change Adaptation and Mitigation	

Overall, GHRM, GSCM and government regulations and legislations can help organizations achieve their sustainability goals while promoting economic growth and social development, which are the main objectives of the UN SDGs.

4.2. Green Human Resource Management

Green HRM is a concept that aims to motivate employees' behaviour to help organizations achieve their environmentally-friendly goals and contribute to environmental sustainability by showing environmentally friendly behaviour. Several companies have successfully GHRM practices [12,13]. For example, Patagonia has implemented GHRM practices to promote environmental sustainability, including offering employees environmental training and encouraging them to participate in environmental initiatives [13]. IBM has implemented GHRM practices to promote environmental sustainability, including offering employees incentives for reducing their carbon footprint and promoting sustainable transportation options [34]. Other companies that have successfully implemented GHRM practices include Unilever, Interface, and Timberland [12,13].

The pro-environmental HR practices identified in the research contribute to the sustainable development of enterprises by incorporating environmental practices into the area of human resource policy. This leads to a reduction in the negative impact of business operations on the environment, which is an essential aspect of sustainable development. By adopting these practices, companies can improve their environmental performance, reduce costs associated with waste management and energy consumption, and enhance their reputation as socially responsible organizations [15].

There is some variation in the literature regarding the three pillars of green HRM. However, based on the provided search results, the three pillars of green HRM can be summarized for three. First pillar is environmental sustainability and it involves promoting ecological responsiveness and sustainable development of resources while involving employees' commitment and engagement towards the organization's goals and practices. It includes practices such as green recruitment, selection, hiring, learning, training and development, performance management and appraisals, total

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reward system, and other practices that promote sustainable workplace practices [35–37]. Secondly, social sustainability and this pillar involves developing employees' skills, knowledge, and attitudes about environmental conservation and environmental management initiatives through training and development programs. It also includes promoting pro-environmental and prosocial corporate management methods and practices [38,39]. Third Pillar is economic sustainability and this pillar involves promoting sustainable economic development that eradicates the depletion of natural resources. It includes practices such as green appraisals and recruitment, training and development that substantially contribute to the sustainability of organizations [37].

Although its increase in popularity, there is no consensus regarding GHRM practices [24]. Several authors developed different approaches; for instance, İktisadi Ve , et al. [21] identified four GHRM practices: green employee acquisition, green employee appraisal, green employee rewards; Luay Jum'a [25] proposed a unidimensional measure for GHRM; Alnsour, Moawiah [26] examined green hiring, green training and involvement and green performance management and compensation; Kara, Karahan & Edinsel, Sercan [10] studied green recruitment, green rewards and compensation and environmental training; Tang et al. Alnsour, Moawiah [27] proposed five GHRM practices: green recruitment and selection, green training, green performance management, green pay and reward and green involvement. Nawangsari and Sutawidjaya [28] suggested the following practices green recruitment, green performance management, green training and development, green compensation, and green employee relations. Moraes et al [29] proposed a model comprising seven GHRM practices: green compensation management, green health and safety, green job design, green labour relations and green performance management, green recruitment and selection and green training and development. According to the article by Rawashdeh [40], GHRM practices that were studied in Jordanian health service organizations include green recruitment and selection, green training and development, and green rewards.

GHRM can contribute to achieving several SDGs. To help understand in what way organizations can convert HRM practices into "green" initiatives that are more likely going to support corporate sustainability, the different dimensions or practices of GHRM are discussed below and shown in Figure:

4.2.1. Green recruitment and selection

The process of selecting and hiring individuals with environmental management skills, mind-sets and behaviours that promote sustainability objectives. It can be linked to the SDGs 8, 12, 13 and 15 by promoting sustainable workplace practices and reducing their operations' environmental impact. For instance, the use of automated application processes, green interview processes through Skype and Zoom, advertisement of jobs on e-career portals, psychometric tests to evaluate applicants' green behaviour value system, digital tools, telecommuting and remote work and inclusion of green competencies in job requirements and advertisements [31,35,36,41,42].

4.2.2. Green compensation management (reward management)

The incorporation of environmental management into compensation and reward systems "financial and non-financial rewards". It can be linked to the SDGs 3, 7, 8, 12 and 13 by promoting sustainable workplace practices and reducing their operations' environmental impact. For example, executive stock option compensation oriented around a 3 years or more vesting period, mapping Green Compensation Package (GCP) with employee rights, and using green performance management and compensation to mediate the relationship between green hiring and sustainable performance [34–36,42–44].

4.2.3. Green training and development

A combination of coordinated activities that encourage and inspire employees to acquire skills around the protection of the environment and give consideration to environmental issues that play a key role in achieving environmental objectives. It can be linked to the SDGs 4, 8, 12, 13 and 17. In ISO

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14001 which states that employees at all levels of the organization understand the environmental system and how to effectively have a positive impact on the environment. Here are some ways in which green training can contribute to sustainable workplace practices such as developing green abilities, promoting environmental awareness, improving employee commitment towards the environment and incorporating green training into organizational policies [31,34–37,41,42,45,46].

4.2.4. Green performance management

The process of encouraging employees to improve their professional skills while also considering environmental concerns and policies of the company. It includes indicators for evaluating green behaviour, such as compliance with standards, progress in the acquisition of environmental responsibilities, and corporate-wide environmental performance standards. It can be linked to the SDGs 7, 8, 12, 13 and 15 [31,35,36,42,47].

Based on the search results, there are limited specific industries in Jordan that have implemented green HRM practices. However, some studies have identified some industries that have implemented GHRM practices in Jordan. These industries include health service organizations [40] and five-star hotel [48]. These practices include such as green recruitment and selection [40], Online interviews and training, green payroll, electronic signatures to avoid wasting paper and using porcelain cups for tea [48].

Jordanian companies can assess their current level of GHRM adoption by considering various factors such as they should assess their current green HRM practices, including green recruitment and selection, total reward systems, green training and development and green performance management. Secondly, evaluate the level of awareness among employees and assess their knowledge and expertise and identify areas for improvement. Also, Jordanian companies can use technology to enable and facilitate GHRM practices, such as digital tools for recruitment and employee communication, telecommuting and remote work, and electronic documentation. Jordanian companies should evaluate the extent to which their stakeholders, including customers, employees, and investors, are demanding environmentally responsible practices and policies. Furthermore, should assess the benefits of adopting green HRM practices, such as cost savings, improved reputation, and increased employee engagement. Finally, Top management commitment. By evaluating these factors, companies can identify areas for improvement in their adoption of green HRM practices and develop strategies to promote sustainable workplace practices and reduce their environmental impact [49,50].

4.3. Green supply chain management (GSCM)

GSCM is an approach that integrates environmental, social, and economic issues. Several companies have successfully implemented GSCM practices [51–55]. For example, Walmart has implemented GSCM practices to reduce waste, improve energy efficiency, and promote sustainable sourcing [51]. Nike has implemented GSCM practices to reduce carbon emissions, improve labour conditions, and promote sustainable materials sourcing [52]. Toyota has implemented GSCM practices to reduce waste, improve energy efficiency, and promote sustainable materials sourcing [53]. Other companies that have successfully implemented GSCM practices include Coca-Cola, Dell, and Unilever [54,55].

GSCM can play a significant role in achieving SDGs by help companies attain three pillars of sustainability: environmental, social, and economic. The goal of GSCM is to balance economic and environmental performance to stay competitive while conforming with regulatory and community pressures. Here are some examples of social, environmental, and economic practices in GSCM First of all, social practices that include fair labour by ensuring that workers are treated fairly and ethically, community involvement by engaging with local communities to understand their needs and concerns and diversity and inclusion through promoting diversity and inclusion in the workplace. Secondly, environmental practices that include green purchasing by buying environmentally friendly products and materials, green manufacturing by using eco-friendly production processes and technologies, green distribution through reducing carbon emissions by optimizing transportation

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routes and modes, reverse logistics ,green packaging by using recyclable or biodegradable packaging materials, environmental education and awareness: providing training to employees on environmental issues, internal environmental management by implementing systems to monitor and reduce environmental impacts and save resourcing and reduce waste by recycling or reusing waste materials. Finally, economic practices include supplier management by working with suppliers to improve their sustainability performance, cost reduction through eco-efficiency measures such as waste reduction and energy efficiency and using waste materials to create new products and risk management by identifying risks associated with environmental, social, and economic issues in the supply chain and managing it effectively [56–61].

According to recent research, there are several dimensions of GSCM practices that have been identified. These dimensions include green purchasing, manufacturing, distribution, packaging, warehousing, environmental education, internal environmental management and investment recovery. Additionally, a conceptual framework proposed by Slašťanová, N., et al., [61] is organized into three environmental dimensions, 21 categories, and 64 green practices. The green practise that mentioned in the research included also practise related to GHRM that include green performance such as environmental audit program, monitoring, environmental accidents and benchmarking and support and education. GSCM assure the effectiveness of public and company policies in greening their operations, increasing the market share, improving the company image and reputation, and increasing profits.

GSCM is a growing area of interest in Jordan, particularly in the manufacturing sectors [18], renewable energy [62], pharmaceutical [63,64] and tourism [65]. By adopting GSCM practices, companies can contribute to the achievement of many SDGs. The different dimensions of GSCM are discussed the following sections:

4.3.1. Green purchasing

One of the most critical dimensions of green supply chain management is the search for specialized suppliers with clean and produced materials in accordance with environmental standards; it is an activity that considers the environmental impacts when making comparisons along with price and quality, bearing in mind that the damaged and lost ones can also be benefited from as much as possible. The selection of vendors who have ISO 1400 certificate is expected to eliminate environmental risk. The reduction in environmental risk improves profitability and then will have those vendors for long-term businesses [74]. Green purchasing behaviour can contribute to several SDGs, such as SDG 7,8,9,12,13,14 and SDG15 [20,65,66,75,76,78,79]. For instance, specifications for suppliers, green packaging, supplier selection, supplier audits and evaluation of second level supplier [61].

4.3.2. Internal environmental management

A practice that includes senior management commitment, mid-level management support, cross-functional assistance, total quality management, environmental auditing program, and ISO 14001 certification. ISO 14001 is an international standard for environmental management systems that provides a framework for organizations to manage their environmental impacts and improve their environmental performance. Many companies use ISO 14001 as a tool to implement and maintain effective environmental management practices [61,74]. IEM can contribute to several SDGs, such as SDG8, 9, 12 13, 15 and SDG17 [67,68,80,81].

4.3.3. Green logistics

Logistics activities are transportation and warehousing and cover all activities related to the selection of the best transportation means, load carriers, transportation routes and green storage to reduce the environmental impact of the whole supply chain [65,74]. Green logistics can contribute to several SDGs, such as SDG8, 9, 11, 12, 13, 14, 17 [69–71,82–85] An example of Green logistics reverse

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logistics such as remarketing, taking back packaging and inspection and classification, warehousing and green building [61].

4.3.4. Green manufacturing and packaging:

It is produced through inputs that comply with environmental standards, are efficient, generate low or no waste, and achieve economic benefits for organizations. As a result, organizations are now following a triple principle: lower cost, recyclability, and reuse, as a green environmental approach that allows them to compete [74]. For example, quality of internal service, cleaner production, inventory management plan, internal green production, design of products to avoid or reduce the use of hazardous products and/or their manufacturing process, design of products for reuse, recycling, recovery of material and component parts, design for resource efficiency and green distribution such as green packaging and documentation [61].

Green manufacturing and packaging can contribute to several SDGs, such as SDG1, 7, 8, 9, 12, 13 [72,73,75,84,86]. Two key policy priorities for greening manufacturing have been recommended by the UN environment program. They are: (a) promoting closed-cycle manufacturing and related life cycle approaches with supportive recovery and recycling infrastructure, and (b) regulatory reform to enable factor efficiency improvements in energy use in manufacturing settings [73].

Jordanian businesses can benefit from implementing GHRM practices in several ways. These include reducing costs, improving operational efficiency, enhancing brand reputation, complying with regulations, and contributing to environmental sustainability. By adopting sustainable practices in their SC, businesses can also create value for their stakeholders and gain a competitive advantage in the marketplace [61].

Jordanian companies can assess their current level of GSCM adoption by considering the following factors:

1. Barriers to adoption: Companies can assess the barriers to GSCM adoption by identifying factors such as lack of support from the government, cost implications, and lack of customer awareness, which were identified as significant barriers to GSCM adoption in Jordanian firms [18,27,61,87].
2. Key drivers of GSCM adoption: Companies can assess the key drivers of GSCM adoption by identifying factors such as government regulations and legislations, stakeholder pressure, global competition, financial factors, and awareness level of customers, which were found to be motivator drivers of GSCM adoption in Jordanian industrial firms [27,88].
3. GSCM practices in the industry: Companies can assess their GSCM practices by analysing their processes in relation to green supplier selection, green purchasing, green production, green design, green distribution, and reverse logistics, which were identified as key GSCM practices in Jordanian manufacturing firms [65].
4. Intellectual capital: Companies can assess the impact of intellectual capital on GSCM adoption by considering the impact of GSCM dimensions, such as Green IT, Green Manufacturing and Packaging, Green Storing, Green Purchasing, and Green Marketing, on the quality of services in renewable energy companies in Jordan [74].
5. ISO 14001: it can help your organization reduce waste and pollution, maintain regulatory compliance, and build a presence as an environmentally conscious company. It can also help you raise profits as a recognized "green" company [61,74,87].

4.4. Government Regulations and Legislations

Sustainability is a paramount global concern that transcends borders, encompassing a wide range of issues related to economic, social, and environmental well-being. In alignment with the United Nations Sustainable Development Goals (SDGs), Jordan has demonstrated a commitment to addressing these global challenges at the national level. This introduction will delve into the context of Sustainability Goals 8, 12, and 13 within the framework of Jordanian regulations, shedding light on the country's efforts to promote economic growth, responsible consumption and production, and climate action, while citing relevant references to substantiate these initiatives. In doing so, it becomes evident that Jordan, as a nation, plays a pivotal role in the global pursuit of sustainable development,

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actively engaging with these goals to secure a better future for its people and the planet. Let's explore how Jordan has integrated three specific SDGs – 8, 12, and 13 – into its regulatory landscape. In this regard, United Nations Goals 8, 12, and 13 hold significant prominence, guiding Jordan's efforts toward advancing economic and social sustainability and addressing environmental concerns [2,4–6].

In the context of Jordanian regulation and legislation, achieving this goals and achieving green economic involves various aspects, such as labor rights, economic diversification, reducing unemployment, Investment in Human Capital, Environmental Protection, and Climate Change

4.4.1. Labor rights:

A cornerstone of SDG 8 in Jordan is the safeguarding of labor rights. The government has implemented labor laws and regulations that establish a legal framework for fair wages, working hours, leave policies, and preventing discrimination in the workplace. These measures are designed to protect workers from exploitation and promote equitable employment practices. The Jordanian Labor Law No. 8 of 1996 is the primary source of legislation that regulates the relationship between employers and employees in the Hashemite Kingdom of Jordan [90,91]. In mid-May 2019, this law was amended by Law No. 14 of 2019, which was published in the official gazette. The main amendments to the law include modifications to various aspects of the employment relationship, including wages, overtime, parental leave, annual leave, childcare, retirement system, and the resolution of wage-related disputes. In addition, employers are committed to the principle of equal pay for work of equal value, and strict penalties are imposed on employers in cases of wage discrimination when work is of equal value.

Note: According to Article 33 of the Jordanian Labor law, Jordan 53 of 1996 as amended of 2019, the employer shall be punished with a fine of not less than five hundred Jordanian dinars and not exceeding one thousand Jordanian dinars for each instance in which they pay an employee a wage less than the minimum wage or discriminate in wages between genders for work of equal value. In addition, the employee shall be entitled to wage differentials, and the penalty shall be doubled for each repeated violation [4,90–93].

In 2017, the Jordanian government adopted the Flexible Working Hours Law to promote women's economic participation, in 2018, the Flexible Work Instructions were issued. These instructions encompass different employment arrangements, including telework, part time work, or flexible working hours. These forms of employment options play a vital role in advancing women's economic participation both the public and private sectors [90,91,94].

4.4.2. Economic Diversification

A diversified economy is vital to sustainable growth. Jordan recognizes this and has been actively working on diversifying its economic sectors, reducing dependency on specific industries, and encouraging innovation and entrepreneurship. This approach aims to create a resilient and dynamic economic landscape capable of withstanding external shocks [4,95].

Jordan can attain economic diversification through a variety of strategies, including fostering high-skill export sectors, boosting tourism, attracting foreign portfolio investments, exploring renewable energy sources, implementing fiscal consolidation, and emphasizing innovation and technological advancement. To achieve these objectives, Jordan may need to establish supportive policies and regulations. For instance, the government could offer incentives to businesses investing in high-skill export sectors, such as tax incentives or subsidies. Additionally, the government could formulate policies that promote the growth of renewable energy, such as implementing feed-in tariffs or net metering. Moreover, streamlining regulations and reducing bureaucracy can enhance Jordan's business environment, potentially attracting more foreign investments [96–98]. For instance, the Jordanian Environmental Investment Law No. 21 of 2022.entered into force, this law aims to provide a conducive environment for existing investments and create attractive conditions for investment, in line with the vision of economic modernization. As a result, Jordan is better positioned to navigate

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economic challenges, foster job creation, and ensure long-term prosperity for its citizens [4,90,91,96–98].

4.4.3. Reducing Unemployment

A central challenge for Jordan is addressing unemployment, particularly among its youth population. To achieve SDG 8, Jordan has been implementing strategies to boost job creation, enhance vocational training programs, and encourage private sector growth. These initiatives aim to reduce unemployment rates and provide opportunities for all segments of society [90]. An example of this is the Jordanian Environmental Investment Law No. 21 of 2022 by encouraging investment in economic zones. The government can provide the necessary infrastructure, tax incentives, and customs facilities to attract investors and establish industrial and commercial projects. These projects can generate employment opportunities for youth and promote sustainable development in deprived areas. It is also necessary to enhance transparency and combat corruption in the economic and business environment. Policies and laws should be implemented to encourage fair competition and protect workers' rights. In addition, the role of institutions responsible for monitoring the labour market should be strengthened, ensuring a safe and healthy work environment. Strengthening cooperation with the private sector is an effective solution to the unemployment problem in Jordan. The government and the private sector can work together to create new jobs and boost the economy [4,90,91].

4.4.4. Investment in Human Capital

Jordan places a strong emphasis on investing in its human capital. This includes improving education and skills development programs to equip its workforce with the abilities needed to thrive in a competitive global economy. This investment is integral to achieving both economic growth and decent work. Jordan's government and private climate-responsive expenditure and capital financing instructions for the year 2022, issued in accordance with the provisions of Article 9 of Climate Change Law No. 79 of 2019 and published in the Official Gazette on January 2, 2022, play a crucial role in strengthening human capital. These operations represent a vital means of directing investments towards areas that promote sustainable development and secure the future of Jordanians. By investing in sustainable and climate-friendly projects, these operations facilitate the creation of new and sustainable job opportunities, contributing to employment opportunities and improving living standards and income potential for citizens. [4,90,91].

This financial allocation also aims to develop education and vocational training and enable the workforce to acquire skills that meet the requirements of sectors responding to climate change. Investing in projects that promote sustainability and improve the environment contributes to improved health and quality of life, which subsequently enhances human capital [4,6].

Moreover, redirecting investments towards new projects and industries in the environmental sector increases the demand for the workforce and expands employment opportunities. Finally, directing investments to environmentally friendly projects enhance environmental safety and protects natural resources, thus contributing to sustainable development.

4.4.5. Environmental Protection

The Environmental Protection Law No. 6 of 2017 is a law in Jordan that aims to protect the environment and establish the Ministry of Environment as the authority responsible for environmental protection. This law addresses a range of environmental protection facets, including facility permits, harmful substances, and waste management. It is crucial to emphasize that Jordan has additional environmental protection laws in place [92].

In Jordan, Law No. 52 of 2006 is also focuses on environmental protection. Furthermore, Environmental Protection Law No. 42 of 2014, strives to protect and maintain the natural balance of the environment and its resources, combat pollution and its consequences, and promote sustainable development. Additionally, Regulation No.68 of 2020 - Hazardous Materials and Waste Management

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System was issued in accordance with Articles 6 and 7 of Environmental Protection Law No.6 of 2017. Nonetheless, currently, Jordan lacks a specific legal framework or a national strategy for the management of solid waste. This absence of a legal framework is leading in inappropriate disposal of solid waste, giving rise to public health risks, adverse environmental impacts, as well as socio-economic challenges. In July 2021, a new law was enacted to impose stricter penalties for littering, with a fine of no less than JD50 and no more than JD500 for each person that disposes of waste improperly, whether through littering or other means. [91,92].

4.4.6. Sustainable Consumption and Production

The National Action Plan for Sustainable Consumption and Production (NAP-SCP) was developed in collaboration with Jordan's Ministry of Environment, as part of the EU-funded SwitchMed program, with advisory services and technical support by (United Nations Environment Program) (UNEP). The purpose of this plan to is to align Jordan's initiatives with the 2030 Agenda and Sustainable Development Goals (SDGs). The National Action Plan for Sustainable Consumption and Production (NAP-SCP) addresses the 12 (SDGs) in three key sectors: (1) agriculture and food production, (2) transportation, and (3) waste management sectors. This plan was developed in Jordan through nationally recognized processes, involving more than 300 national-level multi-stakeholder participants at the national level. [5,99,100]

Ensuring sustainable consumption and production patterns includes optimizing resource efficiency, sustaining infrastructure, granting access to basic services, creating environmentally-friendly employment opportunities, and improving the quality of life for all. Applying sustainable consumption and production patterns also helps achieve comprehensive development plans, reduce future economic, environmental and social costs, enhance economic competitiveness, and alleviate poverty. [4–6,90,91,99].

For example, Law No. 8 of 2022 on Public Procurement is a law in Jordan that governs public procurement operations and transactions. This law applies to all government procurement activities and transactions, including the procurement of goods, works, and services. This law aims to ensure transparency, fairness, and competition in government procurement processes. This law also covers various aspects of procurement, including procurement planning, tendering, evaluation, contract award, and contract management, which could potentially include environmental considerations. For example, this law could require that procurement officials consider the environmental impact of goods, works, and services when evaluating bids. Additionally, the law could encourage the procurement of environmentally friendly products and services [90,91]. The Renewable Energy and Energy Efficiency Law No. 13 of 2012, aims to increase the percentage of renewable energy sources in the total energy mix, promote investment in renewable energy, and contribute to environmental protection and sustainable development. The law allows domestic and international companies to bypass a previously complex bidding process and negotiate directly with the Minister of Energy to ease the project implementation process. In 2014, Royal Decree No.33 amended the Law on Renewable Energy and Energy Conservation, stating that all renewable energy and energy efficiency systems and devices will be exempted from customs duties and sales tax.

4.4.7. Climate change

Jordan places a significant emphasis on addressing climate change and its ramifications, especially given its commitment to the Paris Climate Agreement. Jordan has actively undertaken numerous projects and initiatives aimed at decreasing greenhouse gas emissions and bolstering its capacity to adapt to anticipated climate shifts [99]. Jordan recognizes the urgency of addressing climate change, and also underscores its dedication to global efforts to curb global warming by referencing the Paris Climate Agreement.

In pursuit of Goal 13, Jordan, despite its modest size and persistent challenges, is steadfastly dedicated to the attainment of UN Sustainable Development Goals 8, 12, and 13. Through robust policies and well-crafted legislation, Jordan unwaveringly champions sustainability across all facets of existence while preserving the environment. This commitment not only serves as a guiding beacon

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for Jordan's own development but also positions the country as a significant contributor to global sustainability across economic, social, and environmental domain. For example, Jordan's Climate Change Law No. 79 of 2019 was enacted in accordance Article 30 of the Environmental Protection Law No. 6 of 2017. This law aims to set the institutional and regulatory framework on climate change, particularly within the government. This law includes provisions for institutional arrangements, mainly at the national level, for carrying out climate change activities. It also covers emissions and other climate change-related issues. [2,4–6,91].

5. Discussion and Conclusions

SDGs are not legally binding, but countries are expected to take ownership and establish a national framework for achieving the 17 goals. Therefore, more action is needed to achieve sustainability in Jordan. Regulation and legislation can be a pillar for sustainability and a powerful force in driving sustainable practices. It can help to reduce environmental risks and promote sustainability by addressing the linkages between social, environment, economy, regulation, and sustainability. Therefore, regulation can be an important pillar for sustainability by setting standards and incentivizing sustainable practices. Governments around the globe are increasingly issuing regulations, guidance, and incentives related to sustainability and environmental, social, and governance. However, government regulations and legislations alone are not enough to achieve the SDGs. It must be accompanied by effective policies, programs, and partnerships that involve all stakeholders, including governments, civil society, and the private sector. Also, Environmental inspection and control are important components of ensuring compliance with environmental laws and regulations.

Jordan has made progress towards achieving some of the SDGs, but more need to be done to meet the targets by 2030 and it needs more than just regulation and legislation. Therefore, while regulation and legislation are important components of achieving sustainability in Jordan, they must be accompanied by other measures such as efficient implementation, comprehensive and evolutionary reforms, commitment to sustainability measures, and sector-specific approaches. GHRM and GSCM with enforcement and incentives of regulations and legislation can help Jordan achieve SDGs related to environmental sustainability, such as Decent work, responsible consumption and production, and climate action.

Implementing GHRM and GSCM practices can help businesses become more environmentally conscious, improve their sustainable performance, and gain a competitive advantage. By adopting these practices, businesses can reduce their environmental impact, enhance their long-term values, and contribute to a more sustainable future. A brief of the GHRM and GSCM practices and how it interacts with SDGs shown in Table 5.

Table 5. The green practices of HRM and SCM connected to SDGs.

Dimensions & Practices	SDGs												References
	1	3	4	7	8	9	11	12	13	14	15	17	
GHRM		☑	☑	☑	☑			☑	☑		☑	☑	[3,14,15,16,30,31,34,35,36,37, 41,42,43,44,45,46,47]
Green recruitment and selection					☑			☑	☑		☑		[31,35,36,41,42]
Green compensation management		☑		☑	☑			☑	☑				[34–36,42–44]
Green training and development			☑		☑			☑	☑			☑	[31,34–37,41,42,45,46]

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Green performance management			☑	☑			☑	☑		☑	[31,35,36,42,47]
GSCM	☑		☑	☑	☑	☑	☑	☑	☑	☑	☑	[3,14,20,22,65,66,67,68,69,70,71, 75,76,78,79,80,81,82,83,84,85,86]
Green purchasing			☑	☑	☑		☑	☑	☑	☑		[20,65,66,75,76,78,79]
Internal environmental management				☑	☑		☑	☑		☑	☑	[67,68,80,81]
Green logistics				☑	☑	☑	☑	☑	☑		☑	[69–71,82–85]
Green manufacturing and packaging	☑		☑	☑	☑		☑	☑				[72,73,75,84,86]

From the table above, its shows that all practices of GHRM and GSCM achieve SDG8, SDG12 and SDG13. However, it does not only achieve those, it also achieve others SDGs such green manufacturing and packaging related to SDG1, SDG3 achieve by green compensation management. Furthermore, the research shows how the dimensions and practices will achieve the three pillars of sustainability (see Table 6). Future research can investigate the relation between the practices with other goals.

Table 6. The relation between sustainability pillars and practices.

Dimensions & Practices	Social pillar	Economic pillar	Environmental pillar
Green recruitment and selection		☑	☑
Green compensation management	☑	☑	☑
Green training and development	☑	☑	☑
Green performance management	☑	☑	☑
Green purchasing	☑	☑	☑
Internal environmental management		☑	☑
Green logistics	☑	☑	☑
Green manufacturing and packaging	☑	☑	☑

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